

We claim:

1. A method for translating a virtual memory address into a physical memory address in a multi-node system, the method comprising:

5 providing the virtual memory address at a source node;  
determining that a translation for the virtual memory address does not exist;  
determining a physical node to query based on the virtual memory address;  
querying an emulated remote translation table (ERTT) segment on the physical node  
for the translation for the virtual memory address; and  
10 if the translation is received then loading the translation into a translation lookaside  
buffer (TLB) on the source node.

2. The method of claim 1, wherein the ERTT segment resides in a generally accessible  
memory on the physical node.

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3. The method of claim 1, wherein determining a physical node includes mapping a  
virtual node to the physical node.

4. The method of claim 3, wherein mapping a virtual node to a physical node uses a  
20 mapping provided by an ERTT header located at a well known location to all nodes used by  
an application

5. The method of claim 4, wherein the ERTT header is located on a predetermined virtual  
node.

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6. A computerized system for managing virtual address translations, the system  
comprising:  
a plurality of nodes available for executing programs, each of said nodes having a node  
memory; and

an operating system executable by a source node of the plurality of nodes, the operating system operable to:

receive a virtual memory address at the source node;

determine that a translation for the virtual memory address does not exist on the source  
5 node;

determine a physical node to query based on the virtual memory address;

query an emulated remote translation table (ERTT) segment on the physical node for  
the translation for the virtual memory address; and

if the translation is received then loading the translation into a translation lookaside  
10 buffer (TLB) on the source node.

7. The system of claim 6, wherein the ERTT segment resides in a generally accessible  
memory on the physical node.

15 8. The system of claim 6, wherein the physical node is determined by mapping a virtual  
node to the physical node.

9. The system of claim 3, further comprising an ERTT header located at a well known  
location to all nodes used by an application to provide the mapping from a virtual node to a  
20 physical node.

10. The system of claim 9, wherein the ERTT header is located on a predetermined virtual  
node.

25 11. A computer-readable medium having computer executable instructions for executing a  
method for translating a virtual memory address into a physical memory address in a multi-  
node system, the method comprising:

providing the virtual memory address at a source node;

determining that a translation for the virtual memory address does not exist;

determining a physical node to query based on the virtual memory address;  
querying an emulated remote translation table (ERTT) segment on the physical node  
for the translation for the virtual memory address; and  
if the translation is received then loading the translation into a translation lookaside  
5 buffer (TLB) on the source node.

12. The computer-readable medium of claim 11, wherein the ERTT segment resides in a  
generally accessible memory on the physical node.

10 13. The computer-readable medium of claim 11, wherein determining a physical node  
includes mapping a virtual node to the physical node.

14. The computer-readable medium of claim 13, wherein mapping a virtual node to a  
physical node uses a mapping provided by an ERTT header located at a well known location  
15 to all nodes used by an application

15. The computer-readable medium of claim 14, wherein the ERTT header is located on a  
predetermined virtual node.